

REMARKS/ARGUMENTS

Claims 19 and 38 have been canceled. Claims 18, 20, 21, 24-34 and Claims 36 and 37 are active in the case. Reconsideration is respectfully requested.

The present invention relates to a method of producing light polarizing films.

Claim Amendments

Claim 18 has been amended by placing the limitations of Claim 19 therein. Accordingly, the amendment does not introduce new matter into the case. Entry of amended Claim 18 into the record is respectfully requested.

Claim Rejection, 35 USC 112

The issue that has been raised with respect to Claim 38 is believed to have been resolved by the cancellation of the claim from the application. Withdrawal of the rejection is respectfully requested.

Prior Art Rejection

Claims 18-21, 24-35 and 36-38 stand rejected based on 35 USC 103(a) as obvious over Racich et al, U. S. Patent 4,591,512 in view of Sanefuji et al, U. S. Patent Publication 2002/0001700. This ground of rejection is respectfully traversed.

An important aspect of the arguments that have been advanced for the patentability of the present invention over the prior art of record, particularly the Racich et al patent is the width of the PVA film that is stretched in the present process. It is, in fact, essential that the starting unrolled film have a width of at least 2 meters. If the width of the film is less than 2 meters, then, in the stretching process, the film will significantly neck toward the center of

the film as it is stretched. This is as stated at the bottom of page 14 of the specification. This parameter is not trivial. The fact that the Racich et al patent starts with a film having a width of 533 mm, and, in fact, is constrained to use only a center cut portion of the stretched film having a width of 254 mm in order to obtain a film which possesses a uniform orientation, is not insignificant. All of this is reflective of the state of the art at the time of the invention by Racich et al that the stretching of a PVA film as wide as 2 meters was not possible. To the contrary, in the present invention as claimed, not only is the PVA film stated to have a width of at least two meters, but also the ratio of the stretching distance A to the width of the stretched film is at least 5! This latter limitation is nowhere shown or suggested in Racich et al; likewise Sanefuji et al.

Applicants also again emphasize that the starting film of the reference is initially stretched under dry conditions and not in a borate salt bath, as disclosed at column 2, lines 26-43 of the patent. Under the dry conditions of the initial stretching in Racich et al, the dry stretching of a PVA film is such that it is stretched longitudinally by a factor of 2.5 to 4 times its normal dimension, preferably 3.6 times. The thickness of the film is reduced, in the specific instance disclosed, from 0.046 mm to 0.025 mm and the width of the film is reduced, again, in the specific instance disclosed from an initial width of 940 mm down to about 533 mm. On the other hand, no such dry stretching of a PVA film is featured in the claim embodiments of the present process. Initial monoaxial stretching of the present film positively occurs in an aqueous boric acid bath with the following six aspects prevailing:

- (1) the starting PVA film has a width of at least 2 m;
- (2) the PVA film is stretched in an aqueous boric acid solution;
- (3) the draw ratio of the PVA film in the bath is at least a factor of 5 times;
- (4) $A \geq 5$ (m);
- (5) $A/B \geq 0.5$ (min); and

(6) $A/C \geq 5$.

Applicants again note that in the dry stretching step of Racich et al, the PVA film is stretched longitudinally by a factor of 2.5 to 4 times, preferably 3.6 times which results in a film that is 533 meters wide. However, the width of the film actually sent to the borate bath for treatment and further stretching is only 0.254 meters and, as such, is a length of film cut-out of or excised from the film of a stretched width of 533 mm. Patentees do this for the specific reason that in order to obtain a product polarizer film of highest efficiency, a strip is taken from the center portion of the film which has the highest uniformity of orientation. Thus, the width of the film sent to the borate salt bath is not based on merely the width desired for a product final polarizer.

The reference in the paragraph bridging columns 3 and 4, in teaching a stretching in a borate bath, discloses that the PVA film is stretched in total by a factor of about 5 to 5½ (column 4, lines 8-11). This means that since the PVA film is initially dry stretched by a factor of 3.6 times (column 2, lines 36-38; column 3, lines 61-64), the extent to which the film is stretched in the borate bath is only about 2 to about 2½ times. (The patent at column 3, lines 57-61 teaches a stretching of about 30 % to about 100 % of its dimensions in the borating solution.) This limited stretching in the borate bath is corroborated by the teaching at column 4, lines 23-29 that the PVA film enters the borate bath at a speed of about 0.3 m/min and leaves the bath at a slightly higher speed of 0.42 m/min. In other words, in terms of factor A of the present claims a film speed at entry of the film into the bath of 0.3 m/min at a time of 3.4 min gives an A value of 1.02 meters, and a film speed at exit of the film from the bath of 0.42 m/min at 3.4 min gives an A value of 1.43 meters. (The process features of Example 1 at column 5, lines 17-27 of the patent are consistent with the teachings at the bottom of column 4 of the patent.) This limited secondary stretching is quite distinct from

the requirement of the present claims of a one time stretching (or draw) in a borate bath by a factor of at least 5. The one-time stretching of the present process in the borate bath by a factor of at least 5 is achieved by the specific conditions set forth in Claim 18 of the distance (A) over which the film is stretched of at least 5 meters while the speed (B) of the film exiting the bath is at least 10 m/min. Clearly, in its teaching of the borate bath, the patent does not mention or suggest any of the six items mentioned above. Accordingly, the cited Racich et al patent does not show or suggest the present invention.

The disclosure of Sanefuji et al is believed to be of secondary importance. The reference describes the preparation of a PVA film by use of a casting drum. The product film has a thickness within the range of 20 to 150 μm and a width of at least 2 m [0027]. The patent in paragraph [0030] teaches the use of a film having a width of at least 2 m in monoaxial stretching, not only in wet stretching operations, but also dry stretching operations. However, just as in the case of the Racich et al patent, there is no teaching or suggestion of the six specific limitations set forth in the present claims. That is, the reference gives no teaching or suggestion of a draw ratio upon stretching, a stretching distance (A), a stretched film speed (B) and a ratio of stretching distance to stretched film speed (A/B), as well as the ratio of the stretching distance A to the stretched film width C of $A/C \geq 5$. Accordingly, the present invention is clearly patentably distinguished over the combined prior art and withdrawal of the obviousness ground of rejection is respectfully requested.

Appln. No. 10/691,573
Reply to the Office Action of May 24, 2007

It is believed that the application is in condition for allowance. Early notice to this effect is earnestly solicited.

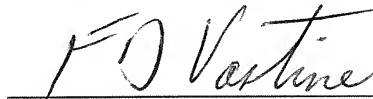
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Respectfully submitted,

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A handwritten signature in cursive script, reading "FD Vastine", written in black ink.

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